Required Date: 7/25/2011

## Work Order ID 72163

Tuesday, July 19, 2011 1:50:47 PM



Page 1

Item ID:

D3455-3

Accept

Setup Start

Stop



**Revision ID:** 

Start Date:

**Item Name:** 

Spacer

7/19/2011

**Start Oty: 20.00** 

Rea'd Otv: 20.00

**Cust Item ID:** 

Customer:

Reference:

Approvals:

Process Plan:

Tooling:

Date:

Run

Start

Stop



QC:

Date:

SPC (Y/N):

Plan

Reject

Reject

Insp.

Sequence ID/ Work Center ID Operation Description Set Up/ **Run Hours** 

Tool ID Tool#

Date:

Accept Code Qty

Number Stamp

**Draw Nbr** 

**Revision Nbr** 

D3455 Rev A

100

Hardinge

Hardinge CNC Lathe Small

Hardinge CNC LATHE SMALL

Memo

0.00

0.00

1-TURN AS PER FOLIO FA584,& DWG D3455, 

FOLIO REV: A □DWG REV:

□2-DEBURR AS REOUIRED

418/10

110

QC

QC2- Inspect parts off machine FAI/FAIB

0.00

0.00

Quality Control

W8118

120

QC

0.00

Quality Control

Memo

OC8- Inspect parts - second check

Memo

|         | . Johana |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|---------|----------|-------------------|---------------------------|------------------------------|--------|----------------|--------------|--------|-------------------------------|--------------------------|--|--|--|--|
| W/O:    |          |                   | WORK ORDER CHANGES        |                              |        |                |              |        |                               |                          |  |  |  |  |
| DATE    | STEP     | PRO               | OCEDURE CHA               | NGE                          |        | Ву             | Date         | Qty    | Approval Chief Eng / Prod Mgr | Approval<br>QC Inspector |  |  |  |  |
| ,       |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
| Part No | :        | PAR #:            | Fault Cate                | gory:                        | _ NCR  | : Yes I        | No <b>DQ</b> | A:     | Date:                         |                          |  |  |  |  |
|         |          | esolution:        |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
| NCR:    |          |                   | WORK ORD                  | ER NON-CONFORM               | ANCE   | (NCR           | )            |        |                               |                          |  |  |  |  |
| DATE    | STEP     | Description of NC | Corrective Action Section |                              | tion B | Ciam 0         | Verific      | cation |                               | Approval                 |  |  |  |  |
|         |          | Section A         | Initial<br>Chief Eng      | Action Description Chief Eng |        | Sign &<br>Date | Sect         | ion C  | Chief Eng                     | QC Inspector             |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
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|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          | ·                 |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |
|         |          |                   |                           |                              |        |                |              |        |                               |                          |  |  |  |  |

## Work Order ID 72163

Tuesday, July 19, 2011 1:50:47 PM



Page 2

Item ID:

D3455-3

Accept

Date:



Setup Start

Stop



**Revision ID:** 

Item Name:

**Required Date: 7/25/2011** 

Spacer

QC:

**Start Date:** 7/19/2011 **Start Qty: 20.00** 

Rea'd Otv: 20.00



**Cust Item ID: Customer:** 

Tool ID

Reference:

Approvals:

Process Plan: Date:

Tooling:

Date:

Tool # Plan

Code

Start Run

Reject

Oty

Stop



Number Stamp

Insp.

Reject

Sequence ID/

Work Center ID

130

Small Fab

Small Fab

Operation Description

Small Fab

Memo

Deburr if necessary.

QC5- Inspect part completeness to step on W/O

0.00

108/10

SPC (Y/N):

Set Up/

Run Hours

Date:

Accept

Qty

140

Quality Control

Memo

150

Packaging

Packaging

Identify as per dwg & Stock Location?

Memo

0.00

0.00

| Dait Ao   | ·oopaoo | Liu               |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|-----------|---------|-------------------|----------------------------------|------------------------------|----------------|-------|--------|-------------------------------|--------------------------|--|--|--|--|
| W/O:      |         |                   | WC                               | RK ORDER CHANGE              | ES             |       |        |                               |                          |  |  |  |  |
| DATE      | STEP    | PRO               | OCEDURE CHAI                     | NGE                          | Ву             | Date  | Qty    | Approval Chief Eng / Prod Mgr | Approval<br>QC Inspector |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
| 20. 61-22 |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         | PAR #:            | Fault Cate                       | gory:                        | DQA: Date:     |       |        |                               |                          |  |  |  |  |
|           |         | esolution:        | Disposition                      | 1:                           | QA: N/C C      | osed: |        | Date: _                       |                          |  |  |  |  |
| NCR:      |         | 1                 | WORK ORDER NON-CONFORMANCE (NCR) |                              |                |       |        |                               |                          |  |  |  |  |
| DATE      | STEP    | Description of NC | Corrective Action Sec            |                              |                |       | cation | Approval                      | Approval                 |  |  |  |  |
|           | 0.2.    | Section A         | Initial<br>Chief Eng             | Action Description Chief Eng | Sign 8<br>Date |       | ion C  | Chief Eng                     | QC Inspector             |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
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|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         | / .<br>           |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |
|           |         |                   |                                  |                              |                |       |        |                               |                          |  |  |  |  |

## Work Order ID 72163

Tuesday, July 19, 2011 1:50:47 PM



Page 3

Item ID:

D3455-3

Spacer

Accept

Setup Start



**Revision ID:** Item Name:

7/19/2011 **Start Date:** 

Required Date: 7/25/2011

**Start Qty: 20.00** 

Rea'd Otv: 20.00



**Cust Item ID: Customer:** 

Tool ID

Reference:

Approvals:

Process Plan:

Operation

Description

Date:

Tooling:

Date:

Run

Start

Stop

Date:

SPC (Y/N):

Set Up/

**Run Hours** 

Date:

Stop

Sequence ID/

Work Center ID

OC **Ouality Control** 

Memo

QC21- Final Inspection - Work Order Release

0.00

0.00

Tool# Plan

Code

Accept Reject Oty Oty

Reject

Insp. Number Stamp

|         | oopaoo |                   |                                       |                              |                |              |                                       |                               |                          |
|---------|--------|-------------------|---------------------------------------|------------------------------|----------------|--------------|---------------------------------------|-------------------------------|--------------------------|
| W/O:    |        |                   | W                                     | ORK ORDER CHANGE             | S              |              | -                                     |                               |                          |
| DATE    | STEP   | PRO               | OCEDURE CHA                           | NGE                          | Ву             | Date         | Qty                                   | Approval Chief Eng / Prod Mgr | Approval<br>QC Inspector |
|         |        | -                 |                                       |                              |                |              |                                       |                               |                          |
|         |        |                   |                                       |                              |                |              |                                       |                               |                          |
|         |        |                   |                                       |                              |                |              |                                       |                               |                          |
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| <u></u> |        |                   | · · · · · · · · · · · · · · · · · · · |                              |                |              |                                       |                               |                          |
| Part No | •      | PAR #:            | Fault Cate                            | gory:                        | NCR: Yes       | No <b>DQ</b> | <b>A</b> :                            | _ Date: _                     |                          |
|         | R      | esolution:        | Dispositio                            | n:                           | QA: N/C CI     | osed:        |                                       | Date: _                       |                          |
| NCR:    |        |                   | WORK ORD                              | ER NON-CONFORMAN             | NCE (NCF       | 1)           |                                       |                               |                          |
| DATE    | STEP   | Description of NC | Corrective Action Section B           |                              |                | Verific      | ation                                 | Approval                      | Approval                 |
| DAIL    | SIEP   | Section A         | Initial<br>Chief Eng                  | Action Description Chief Eng | Sign &<br>Date | Secti        | on C                                  | Chief Eng                     | QC Inspector             |
|         |        |                   |                                       |                              |                |              |                                       | ·                             |                          |
|         |        |                   |                                       |                              |                | •            |                                       |                               |                          |
|         |        |                   |                                       |                              |                |              | · · · · · · · · · · · · · · · · · · · |                               |                          |
|         |        |                   |                                       |                              |                |              |                                       |                               |                          |
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|         |        |                   |                                       |                              |                |              |                                       |                               |                          |

Tuesday, July 19, 2011 1:50:53 PM

Work Order ID: 72163

Parent Item:

D3455-3

Parent Item Name: Spacer



Start Date: 7/19/2011

Required Date: 7/25/2011

**Start Qty: 20.00** 

Required Qty: 20.00

**Comments:** 

IPP REV. A

05.11.17

**NEW ISSUE** 

EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| MDELRINR1.000                   |                        | Purchased     | No          |                     |                  | 100             | f                  | 28.2680        | 0.022       | 0.463158     |               |                |        |
|                                 |                        |               |             |                     |                  |                 |                    |                |             | 8/           | 1118          | 110            |        |

Delrin Round Bar 1"

Location Loc Oty Loc Code MAT055 28.268 0.407 27.861

| W/O:    | -    |                                       | W   | ORK ORDER CHANGE | S                           |       | _               |                               |                          |
|---------|------|---------------------------------------|---|------------------|-----------------------------|-------|-----------------|-------------------------------|--------------------------|
| DATE    | STEP | PRO                                   | OCEDURE CHA                                 |                  | Ву                          | Date  | Qty             | Approval Chief Eng / Prod Mgr | Approval<br>QC Inspector |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      | · · · · · · · · · · · · · · · · · · · | ,     |                  |                             |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
| Part No | :    | PAR #:                                | Fault Cate                                  | gory:            | NCR: Yes                    | No DQ | A:              | Date:                         |                          |
|         |      | esolution:                            |   |                  |                             |       |                 |                               |                          |
| NCR:    |      | 1                                     | WORK ORD                                    | ER NON-CONFORMA  | NCE (NCF                    | R)    |                 |                               |                          |
| DATE    | STEP | Description of NC<br>Section A        | Initial Action Descript Chief Eng Chief Eng |                  | Section B  tion Sign & Date |       | cation<br>ion C | Approval Chief Eng            | Approval<br>QC Inspector |
|         |      |                                       | Office Eng                                  | Office Eng       | Date                        |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      |                                       |   | •                | -                           |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |
|         |      |                                       |   |                  |                             |       |                 |                               |                          |

| DART AEROSPACE LTD           | Work Order:   | 721/13      |
|------------------------------|---------------|-------------|
|                              | Doub Mouse ou | D3455-3     |
| Description: Spacer          | Part Number:  | D3435-3     |
| Inspection Dwg: D3455 Rev: A |               | Page 1 of 1 |

| <b>-</b>             | FIRS          | ST ARTICLE II       | NSPECT | ION CHE | ECKLIST                 |            |              |
|----------------------|---------------|---------------------|--------|---------|-------------------------|------------|--------------|
|                      | -             | X First Arti        |        | _       | otype                   |            |              |
| Drawing<br>Dimension | Tolerance     | Actual<br>Dimension | Accept | Reject  | Method of<br>Inspection | Col        | mments       |
| Ø0.386               | +0.005/-0.000 | 387                 |        |         | 2/12                    |            |              |
| Ø1.00                | +0.010/-0.001 | 1.003               |        |         |                         |            |              |
| 0.050                | +/-0.010      | .050                | /      |         |                         |            |              |
|                      |               |                     |        | ļ.,     |                         | <u> </u>   |              |
|                      |               |                     |        |         |                         |            |              |
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|                      |               |                     |        | 1       |                         |            | · .          |
|                      |               |                     |        |         |                         |            | <del></del>  |
| Measured by:         | LZ            | Audited by:         | B.A    |         | Prototype               | Approval:  | N/A          |
| Date:                | 11/5/10       | Date:               | T      | 10      |                         | Date:      | N/A          |
| Rev Date             | Change        |                     |        |         |                         | Revised by | Approved     |
| A 06.07.11           | New Issue     |                     |        |         |                         | KJ/JLM 🚜   | 1 3          |

....

| Duit No. | oopaoo |                             |              |   | •           |        |  |                                     |                          |
|----------|--------|-----------------------------|--------------|---|-------------|--------|--|-------------------------------------|--------------------------|
| W/O:     |        |                             | WO           | RK ORDER CHANG                              | <b>iES</b>  |        | · · · · · · · · · · · · · · · · · · ·    |                                     |                          |
| DATE     | STEP   | PR                          | OCEDURE CHAN | IGE   | Ву          | Date   | Qty                                      | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|          |        |                             |              |   |             |        |  |                                     |                          |
|          |        |                             |              |   |             |        |  |                                     |                          |
|          |        |                             |              |   |             |        |  |                                     |                          |
| Part No  | •      | PAR #:                      | Fault Categ  | ory:  | _ NCR: Yes  | No DQ  | A:                                       | Date: _                             |                          |
| Resolu   |        | solution:                   | Disposition  | :   | _ QA: N/C C | losed: |  | Date: _                             |                          |
| NCR:     |        |                             | WORK ORDE    | R NON-CONFORM                               | ANCE (NCF   | ₹)     |  |                                     |                          |
| DATE     | STEP   | Description of NC Section A | Initial      | Corrective Action Sec<br>Action Description | tion B      | a :    | Verification Approve Section C Chief Eng |                                     | Approval QC Inspector    |
|          |        |                             | Chief Eng    | Chief Eng                                   | Date        |        |  | Onior Eng                           | QO mopostor              |
|          |        |                             |              |   |             |        |  |                                     |                          |
|          |        |                             |              |   |             |        |  |                                     |                          |
|          |        |                             |              |   |             |        |  |                                     |                          |
| į        |        |                             |              |   |             |        |  |                                     |                          |
|          |        |                             |              | 32-   |             |        |  |                                     | i                        |
|          |        |                             |              |   |             |        |  |                                     |                          |
|          | 1      |                             |              |   |             |        |  |                                     |                          |



| DESIGN<br>R | •    | DRAWN BY<br>RF | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |                        |  |  |  |
|-------------|------|----------------|---|------------------------|--|--|--|
| CHECK       | ED#  | APPROVED       | DRAWING NO.<br>D3455                              | REV. A<br>SHEET 1 OF 1 |  |  |  |
| DATE        | -    |                | TITLE   | SCALE                  |  |  |  |
|             | 05.0 | 9.02           | SPACER  | 2:1                    |  |  |  |
| Α           | 0    | 5.09.02        | NEW ISSUE   |                        |  |  |  |

SHOP:COPY RETURN TO

RELEASED 05.12.09

> **ENGINEERING** UNCONTROLLED COPY SUBJECT TO AMENDMENT  $\phi A^{+0.005}_{-0.000}$ WITHOUT NOTICE WORK ORDER NO. 72143-p111-07-19 ØΒ D3455-X

### 1) SPECIFICATION: D3455-X SPACER

DASH No.

#### WHERE 'X' IS THE SIZE PER THE FOLLOWING TABLE:

| DASH<br>No. | A<br>(in) | B<br>(in) | C<br>(in) |
|-------------|-----------|-----------|-----------|
| -1          | 0.453     | 1.00      | 0.065     |
| -3          | 0.386     | 1.00      | 0.050     |

### NOTES:

- 1) MATERIAL: DELRIN ROUND BAR (REF. DART SPEC. M-DELRIN-R)
- 2) FINISH: NONE
  3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
  4) ALL DIMENSIONS ARE IN INCHES
  5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.010

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| Dail No. | ·oopaoc | Liu               |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|----------|---------|-------------------|----------------------------------|------------------------------|-----------------------|---------|-----------------|-------------------------------------|--------------------------|--|--|--|--|--|
| W/O:     |         | 1                 | V                                | ORK ORDER CHANGI             | ES                    |         |                 |                                     |                          |  |  |  |  |  |
| DATE     | STEP    | PRO               | OCEDURE CH                       | ANGE                         | Ву                    | Date    | Qty             | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |  |  |  |  |  |
|          |         | ·                 |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 | •                                   |                          |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         | <u> </u>        |                                     | 7                        |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
| Part No  | :       | PAR #:            | Fault Ca                         | tegory:                      | NCR: Yes No DQA: Date |         |                 |                                     |                          |  |  |  |  |  |
| Resol    |         | esolution:        | Disposit                         | ion:                         | _ QA: N/C CI          | osed:   |                 | Date: _                             |                          |  |  |  |  |  |
| NCR:     |         |                   | WORK ORDER NON-CONFORMANCE (NCR) |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
| DATE     | STEP    | Description of NC | Corrective Action Section        |                              |                       | Verific | cation Approval |                                     | Approval                 |  |  |  |  |  |
| DAIL     | JILF    | Section A         | initial Chief Eng                | Action Description Chief Eng | Sign &<br>Date        | Secti   | on C            | Chief Eng                           | QC Inspector             |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         | :                 |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
| :        |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         |                   | 1                                |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
|          |         |                   |                                  |                              |                       |         |                 |                                     |                          |  |  |  |  |  |
| 1        | i       | 1                 | 1                                |                              | I                     | - 1     |                 | i                                   | I                        |  |  |  |  |  |